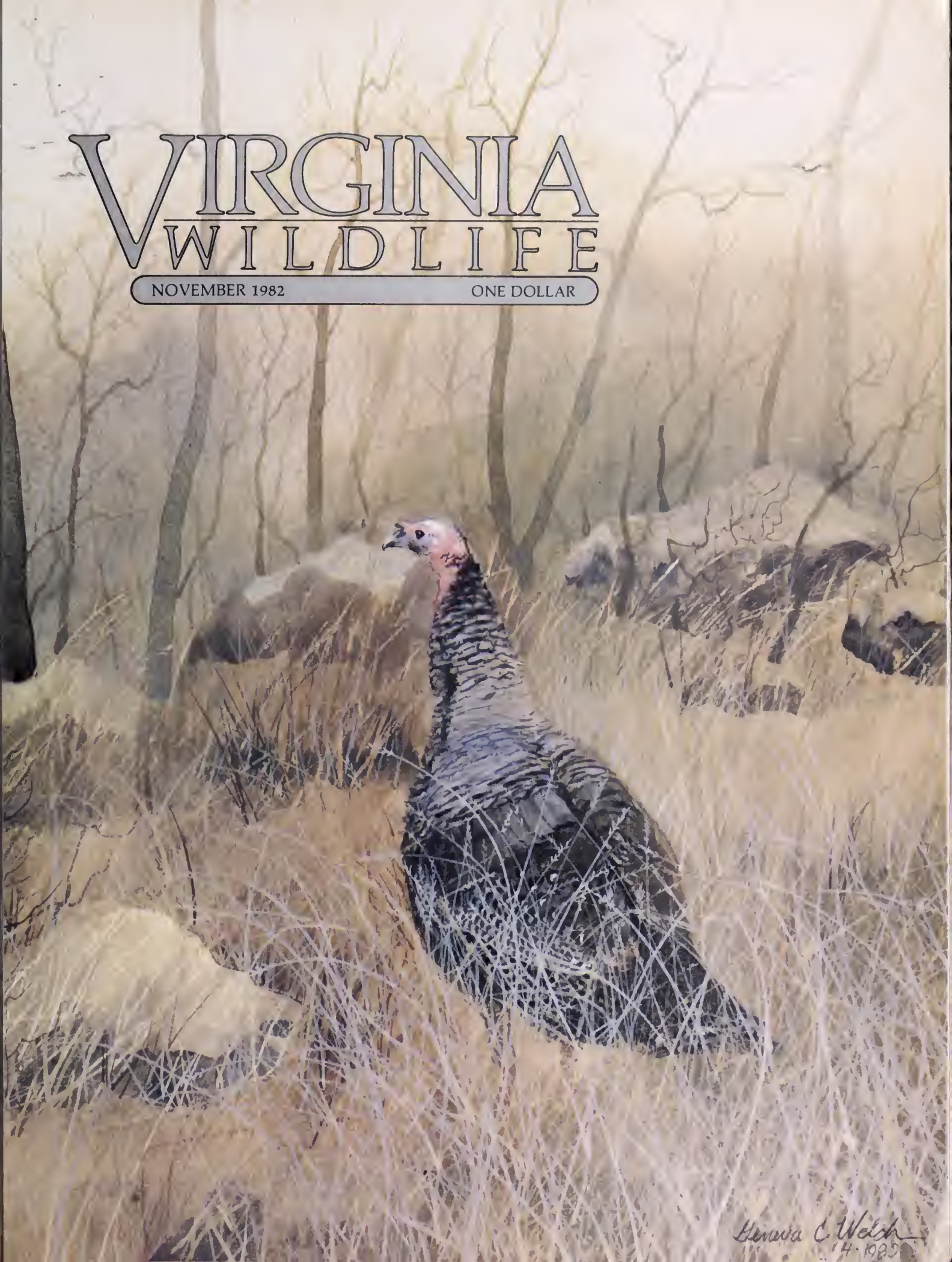
VIRGINIA WILDLIFE

NOVEMBER 1982 ONE DOLLAR



VIRGINIA WILDLIFE

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Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources
Volume 43, Number 11 November 1982

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Wild Turkeys by Geneva Welch, Mt. Airy, Maryland.
Back cover painting by Ed Hatch, Spring Grove; this painting is available to *Virginia Wildlife* subscribers as a limited edition print. See the special envelope inserted in this issue for details of this print offer.

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Christmas Cheer Throughout The Year

Try to think of a holiday gift that

- you don't have to go to a crowded shopping center to buy
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- is just right for people of all ages
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Give up? It's *Virginia Wildlife*, of course! Give a one-year subscription to 10 of your friends and relatives, and it costs you only $3.00 per subscription. That's hard to beat, these days. *Virginia Wildlife* ordinarily sells for the already low price of $5.00 per year, but you can save $2.00 over that with this special offer.

But that's not all—besides the joy of knowing that you've given the gift of wildlife and the outdoors, with all its color and adventure, you can receive your *own* gift: a beautiful, suitable-for-framing, full-color wildlife print by an up-and-coming Virginia artist Free!

Yes, this year, we offer a limited edition print by award winning artist Ed Hatch. Ed's work was featured in the February 1982 issue of *Virginia Wildlife*, and it was so well-received that we've commissioned him to do a painting especially for our readers. This limited edition, signed print, with an overall size of 16 inches by 20 inches on fine quality paper, would sell for $50.00 in an art gallery . . and would no doubt appreciate in value substantially over time. But we are offering it to you free, just for giving 10 or more of your friends the year-round gift of *Virginia Wildlife*. Subscriptions will begin with the January issue, *provided we receive your order by November 15.*

But order soon—the supply of prints is limited!

Letters

Special Hunting Issue

Just a short note to tell you how much I enjoyed your last issue of *Virginia Wildlife*. We just received the September, 1982 issue, the first I've seen of your publication for quite awhile. I'm looking forward to seeing more issues!

The magazine looks good front to back, and the stories were well written. You included a nice balance for all your outdoor recreationalists. We in Illinois envy you, and dream of the day when we will have something comparable.

Gary C. Thomas
Editor, *Outdoor Highlights*
Illinois Department
of Conservation

The September issue of *Virginia Wildlife* is the finest one yet, and has prompted me to thank you and your staff for a job well done. The layout, the art, the writing all are of good quality. I was proud of the issue, and I'm sure you are as well. Keep at it!

Bill Cochran
Outdoor Editor
Roanoke Times-World News

Catch-22

"What is a Concealed Weapon," by Stephanie Slahor in your September issue is a good reminder for Virginia hunters that they are subject to a Catch-22 law in need of reform.

Section 18.2-308 of the Code of Virginia, which prohibits carrying weapons about the person hidden from common observation, is technically violated by every hunter who conceals himself, and hence his weapon, from the observation of deer, turkey, and (despite his blaze orange) humans. After all, the object of a deer stand or duck blind is to hide.

The right of keep and bear arms is guaranteed by the Virginia Bill of Rights, and under the state code, firearms may be carried openly anywhere except to churches and schools. Further, carrying within common observation does not require the impossible, such as visibility of 360 degrees.

Did you ever notice that it always seems to be cold and rainy when you go hunting? Under current law, the growing number of handgun hunters are expected cheerfully to expose their expensive pieces to rust, scratches, snags, and accidental discharge, even though the experts on six gun hunting all recommend wearing a shoulder holster under the coat.

Hunters who do not take to the idea of a possible one-year jail term, a thousand dollar fine, and (worse still)—the forfeiture of a fine Colt or S&W may apply for a concealed weapons permit, but not all circuit court judges understand why it is important to hunt correctly and safely, and you have no right of appeal.

We are hopeful that legislation will be adopted liberalizing the permit procedure for citizens of good character, and exempting persons engaged in hunting from the prohibition against carrying concealed weapons. Every hunter who deems it a bit foolish to carry his buck knife (which some law officers cannot distinguish from a Bowie blade) on a special belt worn over his coat ought to write his representatives in the General Assembly in support of this pro-hunter legislation.

Stephen P. Halbrook
Fairfax

Virginia Flora

Please tell me what has happened to Elizabeth Murray! Her articles were always the first ones I turned to, and I miss them so much. I still look for her and her lovely wildflowers but she's never there anymore and I've just about persuaded myself (much against my will) that she never will be again.

"The Bird of the Month" was always next. Of course I read that first now and enjoy it so much. But Elizabeth Murray has left a real void in your lovely magazine.

Thank you for *Virginia Wildlife*. It means so much to me, and I have kept each one for all the years I have gotten them.

Frances Adams Phillips
Lynchburg

Sarah Bartenstein

Since my husband and I moved here from Ohio we have been receiving *Virginia Wildlife* and always enjoyed it. One of our few wishes though, was that we'd like to read an article every so often about something other than birds. (Not that we don't like birds. Between the two of us we've got 20 hours of ornithology from college, besides our own morning bird walks.) But how about an article on trees? Or edible wild foods? That's why we so much enjoyed the article by Joel D. Artman on the American chestnut. Having seen a few remnant trees we've become very interested in reading about the unfortunate species. We loved the article and would sure like to see more on the flora of Virginia.

Paige G. Curtis
Ruther Glen

Although our first priority in Virginia Wildlife *is wildlife, we have traditionally published articles on plants because they are of interest to outdoorsmen, and because we do like to include articles about "related natural resources," as noted in the statement of purpose that appears on our masthead each month.*

Last year, we decided that we could better serve our readers by publishing articles on Virginia's flora on a feature basis, as opposed to a regular monthly department, so Elizabeth Murray's last edition of "In Nature's Garden" appeared in December 1981. Mrs. Murray continues to write for us on a freelance basis, however, and we published her articles in the February and March issues. You can also expect to see her in Virginia Wildlife *again this spring. And we'll keep flora covered in the magazine by our other fine contributors, as well.*—Managing Editor

THE WHITETAIL IN VIRGINIA

During this century, the size of Virginia's deer herd has increased dramatically. But is the size of the individual deer decreasing? Are trophy racks a thing of the past?

by Ad Crable

Lloyd B. Hill

Leonard Lee Rue

Age, and quality and availability of food are the chief factors affecting antler size.

Like many Americans, deer hunters are nostalgic. Some get downright elegaic about the past. The way it was, they say, was bigger deer, bigger racks, fewer hunters to avoid.

In Virginia, at least, their contentions ring true. Due to a variety of natural factors, and man's design, whitetail deer in the Commonwealth generally are smaller than those hunted 20 or 30 years ago. Again, generally speaking, there are fewer trophy racks afield, not because antlers are shrinking but because fewer deer live long enough to sport advanced spreads and because larger deer herds are generally less well nourished now than 20 years ago. No one can deny that the ranks of nimrods annually battling bucks have spiraled in the last decade.

Physical statistics kept by game biologists on annual deer harvests also show there are plenty of large specimens and sprawling racks around each season to whet any hunter's appetite.

Some veteran hunters in the tidewater area, where peanut-surfeited deer are busting scales, are of the opinion that deer are actually growing larger.

The history of the state's current deer herds is relatively recent. It dates back to 1916 when the Virginia Commission of Game and Inland Fisheries was established. The Game Commission inherited management of a poor hunting environment. Market hunting, no bag limits and nonexistent deer seasons decimated deer herds. In the then-wilderness west of the Blue Ridge Mountains, the rugged frontiersman felt he needed unlimited access to deer for food and clothing. The first deer season west of the mountains wasn't legislated until 1849. In those western counties, where deer were once plentiful, the whitetail was nearly exterminated from 1890 to 1910.

The first and most pressing priority of the fledgling Game Commission was to restore deer, especially in the western range. Ironically, one of the Game Commission's chief roles today is to check overpopulation.

The earliest records of deer stockings in the state are scant, and the road to recovery was a slow one. After a meager 793 bucks, does and fawns were bagged statewide in 1923-34, the state moved to protect does, and the bucks-only season became a fixed feature everywhere until at least 1931.

The earliest deer restocking in the state occurred in 1926 when Rockingham County residents underwrote the purchase of five bucks and eight does from Romney, West Virginia. The deer were kept in a 40-acre enclosed preserve for about two years, then released. It was not until 1929 that the Game Commission appropriated funds to match local funds from Washington County for the restocking of deer from North Carolina.

The state entered the restocking program in earnest in 1931. From 1931-1950 some 1,870 deer were imported from 11 other states at a cost ranging from $25 to $125 and set free in 27 counties, almost all west of the Blue Ridge Mountains. The "refuge" afforded by the George Washington and Jefferson National Forests encouraged the Game Commission towards funding the venture. Augusta, with 450 deer during the period, was the most heavily stocked county, followed by Rockingham and Wythe counties.

Chief deer suppliers were Pisgah National Forest in North Carolina, the Trexler Lehigh Game Farm in Pennsylvania, Michigan, Wisconsin and Alabama.

The program received a shot in the arm in 1937 with the passage of the Federal Aid to Wildlife Restoration Act which opened up federal money.

In 1950 the state also launched its own transplanting project. Through the present, 1,645 deer have been relocated, primarily in southwestern Virginia. The Radford Army Ammunition Plant in Montgomery and Pulaski Counties remains the biggest reservoir. Also tapped were the Hurricane Branch area in Smyth County, the Glades area of Scott County, the Comers Rock area in Grayson and Wythe counties, Big Levels Refuge in Augusta County and the Gathright area in Bath County.

Today, closed seasons on deer exist in Buchanan County, parts of Dickinson and Fairfax County and the city of Arlington. The 1928 harvest of 687 animals represents about the average kill per county now.

But what of the deer themselves, what effect has their

Leonard Lee Rue

Larger deer herds are generally less well nourished now than they were 20 years ago.

origin, food supply, herd size and habitat had on such vital features as weight and antler size? Can we have more without settling for less?

Antlers, those headresses whose potential size and spread alone account for many fall forays into the woods: state game biologists are in accord that age and quality and quantity of available food plants are the chief factors affecting antler size.

Jack Gwynn, game research biologist supervisor in Charlottesville, who has addressed the quality versus quantity argument several times in print, says ample food supply, especially during May, June and July, is the most critical factor affecting a buck's rack. "A young, growing buck utilizes available nutrients first for body growth with only surpluses in excess of growth requirements being used for producing antlers," he says. Experiments show, he adds, that if food is plentiful during the three summer months when antlers are being produced, the antlers will be of normal size even if winter feeding is restricted.

Moreover, keeping track of yearling buck antlers and body weights can help biologists gauge the health of deer herds and status of habitat. Monitoring deer harvests is now the standard tool used by the Game Commission in game management determinations such as shortening and lengthening hunting seasons.

And so it is that Max Carpenter, a game biologist who has studied deer kills in Shenandoah County for over 20 years, each fall camps outside the suddenly-bustling South End Grocery near Edinburg to tally the points on yearling bucks and record their hog-dressed weights. He tabulates the number of yearlings with spikes (representing inadequate feeding) to those with more than two points. Deer herds in the very best ranges average about five percent spikes. In Virginia, in an effort to compromise between quality and quantity, notes Gwynn, 30 percent or fewer spikes are sought.

Western Virginia deer herds averaged 95 percent spikes in the 1960's, but Carpenter notes that recently-collected data from check stations west of the Blue Ridge achieved the herd parameters biologists like to see. (In fact, some biologists think there may even be too many deer in some counties.) Spikes killed during the 1980-81 season totalled 33 percent with almost 70 percent of the remaining yearlings sporting four, six, eight or more points. Correspondingly, yearlings averaged over 98 pounds, "probably some of the best in the state," says Carpenter. Fall weights chiefly reflect the deer's condition during the period just before the harvest. The healthy antler development (spring-summer feeding), and hefty weights (fall feeding) tell Carpenter that habitat is adequate for the county's expanding deer herd.

A healthy buck generally has larger antlers each year up to 5½ years. Points generally increase to age 4½ or 5½ before stabilizing. Disruption in diet or age, game biologists say, can alter the trend, and a young buck may sprout a larger rack than an elder suffering from malnutrition or age infirmities.

Carpenter believes the total number of trophy-sized racks may be declining. "I think overall we see that the deer aren't changing much but the deer have to be about 5½ years old to get such big racks and we have so much hunting pressure now that not as many reach that age. It's wrong to say they're getting smaller; it's better to say we don't have as many bucks living that long." He points out that in the Shenandaoh Valley the majority of bucks killed each year are yearlings and 2½-year olds, which is as it should be.

The importance of a deer's diet on his physical and antler development is demonstrated annually through deer harvest in the low country of southeastern Virginia. Wrote Charles O. Handley, former head of the Virginia Cooperative Wildlife Research Unit, in 1932: "It is only necessary to look at the topographic map sheets to see why the deer have so persistently clung to this region. Numerous rivers, creeks and tidewater bays and estuaries cut through the low country and carry along their courses extensive swamps and bottomlands, broad marshes and canebrakes, and farther back from the coast as the land rises are rough breaks where side drainage cuts down to the streams. The very nature of the timber and wild growth, with abundance of acorn, nut-bearing fruit and seed-bearing trees and shrubs makes the region a game paradise. In addition to natural foods, when

Leonard Lee Rue

A healthy deer herd averages about five percent spike bucks.

the crops on adjoining lands are removed from the fields there is much scattered grain, peas, beans and peanuts left on the ground to be utilized by game through the mild winter months."

Game biologists theorize that peanuts and soy beans as a major source of vittles is one reason Southampton County consistently produces the largest number of deer killed each year. The area, which never received a stocked deer, also is the perennial leader in total kills.

Such stakes have prompted a spate of annual buck contests in the region. Claims Charlie Fenderson, who has been sponsoring the events in Petersburg sporting good stores for over 30 years: "I think overall the deer are bigger than before. Any whitetail deer over 200 pounds is a rarity. But this past season we had one at 199 pounds and another peaking the scales at 197 pounds. Our entries average about 165 pounds."

Pat Poh, part owner of the Red Ford and Son Sporting Goods Store in Colonial Heights, tossed out antler categories altogether a few years ago and now centers his contest around pure pounds. "You know, you get to arguing about what's a point and what isn't," he drawls. "The scales don't lie." During the 1979-80 season it took a 205½-pounder to whip the competition. Last season a 199-pound specimen was hauled in and Poh checks at least 10 deer each year over 190 pounds. "The majority of our big deer are out of Dinwiddie and Prince George County. They're eating those peanuts, you know."

But it is the once-miserable counties west of the Blue Ridge Mountains that have filled the record books with trophy racks. The state's all time record head was bagged in a southeastern county—by Peter F. Crocker of Windsor in Isle of Wight in 1962—but of the top 10 racks with nine points or more five were weaned in the western range.

What part, if any, do genetics play in the anatomy of deer? The deer restocked from the Great Lake states were generally larger than native Virginia whitetails in both physical size and antlers. The phenomenon is known as "Bergman's Rule," which states that in warm-blooded species, the larger the animal, the less relative surface area is exposed to the environment. The design permits minimal heat loss, allowing the northern races to better adapt to severe winters. Going south, the reverse is true. Bucks in the Florida Keys average a dainty 50 pounds.

The question is, are the northerners' offspring still exhibiting their larger features? No, say most game biologists.

Jerry J. Blackard, in a 1971 research paper on the history of deer restoration in 11 southeastern states, notes that 10 of the states acquired deer from Wisconsin. "This has been viewed by some sportsmen as an effort to establish a herd of large deer' in the South. The offspring from Wisconsin animals undoubtedly were larger than southern deer of the same age. Since deer are the product of their habitat, subsequent generations of transplanted northern deer eventually lost the larger body characteristics. The primary reason for acquiring deer in Wisconsin was that this was a dependable source of supply during the initial period of restocking. Acquistion of northern deer did, no doubt, excite and get the support of many southeastern deer hunters for the restocking program."

Concurs Shenandoah National Park biologist Brad Phillips, "Whatever genetic advantage would have been lost with all the generations of deer populations we have had since then."

The experts agree that it is food, not genes, that influences racks.

This fall, barring a protracted blizzard, deer hunters will likely bag a record number of whitetails in Virginia for the 12th time in 13 years. The average weight and size of racks will probably be lower than those vital statistics of the 1962 season when one-third as many deer were harvested. But it is a statistical constancy that averages are comprised of highs and lows. There will be a lot of highs in the woods this year. □

Editor's note: All weights refer to field-dressed weights unless otherwise noted.

Ad Crable, formerly of Front Royal, is now a reporter with the Lancaster (PA) New Era *newspaper. An avid hunter, angler and backpacker, he has written numerous features on the outdoors for* Virginia Country *magazine, and continues to pursue his interests in the Commonwealth.*

Trout fishing is an extremely popular outdoor recreational sport in the United States. In Virginia alone, over 128,000 anglers fish for trout each year. To help meet the ever increasing public demand for more trout fishing opportunities, approximately one million rainbow, brook, and brown trout weighing nearly 410,00 pounds are stocked annually into 185 cold-water streams and 18 small lakes and ponds in 40 counties throughout Virginia.

Anglers often ask, where do the trout go after they are released? Do trout remain near where they are stocked? Do they tend to move upstream or downstream? Do they move more if stocked into pools or riffles? How do environmental conditions such as water temperature and flooding affect the movements of trout? Do some species of trout move more than others?

Answers to these and other questions, resulted from a study on the movement of hatchery-reared trout stocked into Big Stony Creek, Giles County, Virginia.

During the 1979 trout season, we stocked a total of 2,777 trout into selected pools and riffles of Big Stony Creek. All trout were individually marked with numbered plastic tags inserted near the dorsal (top) fin of the fish, and the release site of each trout was recorded. Anglers who fished Big Stony Creek were interviewed throughout the trout season and asked to identify where in the stream they caught tagged trout. To help the anglers indentify capture locations, the stream was marked off with numbered plastic flags attached to trees along the stream banks at 100 foot intervals. Capture site and tag number information provided by the anglers enabled us to determine the distance and direction in which the stocked trout moved.

Trout anglers were very cooperative in providing catch information and returning tags. From a total of 2,777 tagged brook, brown, and rainbow trout released, 784 tags, representing a return rate of 28 percent, were recovered. Compared to similar studies in other states the number of tags returned was high, and we gratefully appreciate the enthusiastic help provided by the anglers.

The results indicated that rainbow trout stocked throughout the year in Big Stony Creek did not move far from where they were stocked. Of the 578 rainbow trout tags recovered, the majority (75 percent) of the trout were caught within 1300 feet of where they were released, and 22 percent of the trout were caught within 100 feet of the initial release site.

Where Do All the Stocked Trout Go?

Louis A. Helfrich

Knowing the facts and figures about where trout are moving after they're released just might help you catch your limit next time out.

by Louis A. Helfrich and William Kendall

Most of the tagged rainbow (45 percent) moved downstream of the release sites, whereas only 33 percent moved upstream. The average dispersal distance for all rainbow trout stocked was 100 feet downstream.

A comparison of the movements of rainbow trout stocked into pools with those of rainbows stocked into riffles showed no different movement patterns. Of the 283 rainbow trout stocked into pools: 22 percent remained in the immediate area, 40 percent moved downstream, and 38 percent moved upstream. Of the 295 rainbow trout stocked into riffle areas, 22 percent remained in the immediate area, 50 percent moved downstream, and 28 percent moved upstream. Slightly more riffle-stocked trout than pool-stocked trout moved downstream, but these differences were minor. It appears that the type of stream habitat (pools or riffles) into which trout are stocked has little effect on their movements. Thus, there seems to be little advantage for anglers to crowd into stocked pools or riffles since the trout tend to distribute themselves somewhat evenly in the stream regardless of where they are stocked.

When the movements of rainbow trout were examined by the time of stocking, we noticed three very distinct seasonal movement patterns:(1) rainbow trout stocked in the spring of the year (April, May) tended to move downstream, (2) rainbows stocked in the summer months (June, July, August) showed little or no movement; and (3) rainbows stocked during the fall (September, October) moved in an upstream direction.

We believe that these differences in seasonal movement patterns are due to a combination of changing water temperatures and streamflow rates. For example, in the spring of the year, increasing water temperatures and high stream flows (spring floods) may stimulate trout to move downstream. In the summer, warm water temperatures and low streamflows may inhibit the trout movement. During the fall, decreasing water temperatures and higher streamflows appear to stimulate an upstream movement of stocked rainbow trout. Anglers may wish to consider these movement patterns when fishing for stocked trout during various seasons.

In addition to seasonal variations in movement patterns,

Robin Schroeder

Sarah Bartenstein

(Left) Henry County anglers wait for Game Commission personnel to stock their part of the Smith River. (Above) Stocking the river at Philpott Dam.

our results also indicated that the three species of trout have different movement patterns. During May, we were able to stock a limited number of brook and brown trout along with the rainbows. We noted that most of the brook trout, like the rainbows, tended to move downstream from the release sites. Of the 57 brook trout tags returned, 69 percent were caught downstream, 12 percent were captured upstream, and 19 percent remained in the vicinity of the release sites. On the other hand, most brown trout tended to move upstream from the release sites. Of the 22 brown trout tags returned, 68 percent were captured upstream, 18 percent were recovered downstream, and 14 percent remained near the release sites. Of the three species stocked during the spring of the year, brook and rainbow trout tended to move downstream, but brown trout moved upstream from the stocking areas. Therefore, anglers wishing to catch brook trout may have more luck downstream of the stocking locations, while anglers who prefer to catch brown trout may find them more abundant upstream in the spring of the year. Although spring-stocked rainbows exhibited a slightly greater preference for downstream movements, they generally distributed themselves more evenly up and downstream from stocking sites than did brook and brown trout.

On the basis of these results, trout anglers should note that (1) stocked trout do not move very far from where they are released; (2) trout stocked in pools do not move very differently from those stocked into riffles; (3) rainbow trout tend to move downstream in the spring, show little movement during the summer, and tend to move upstream in the fall; (4) warm water temperatures and low stream flows seem to limit trout movements, while cool water temperatures and high streamflows appear to stimulate trout movement; and (5) brook trout tend to move downstream while brown trout tend to move upstream in the springtime.

As always, fishing success depends on the skills of the individual angler, but knowing where to start fishing may be a move in the right direction. □

Louis Helfrich is a fisheries extension specialist for the Virginia Cooperative Extension Service and assistant professor in Virginia Tech's department of fisheries and wildlife science. At the time that this manuscript was written, William Kendall was a candidate for a master of science degree in that department; he recently began work as an aquatic biologist for the West Virginia Department of Natural Resources.

(Below) A trout fisherman in the Dan River. (Right) Game warden Mike Bise stocks trout from a fish division truck.

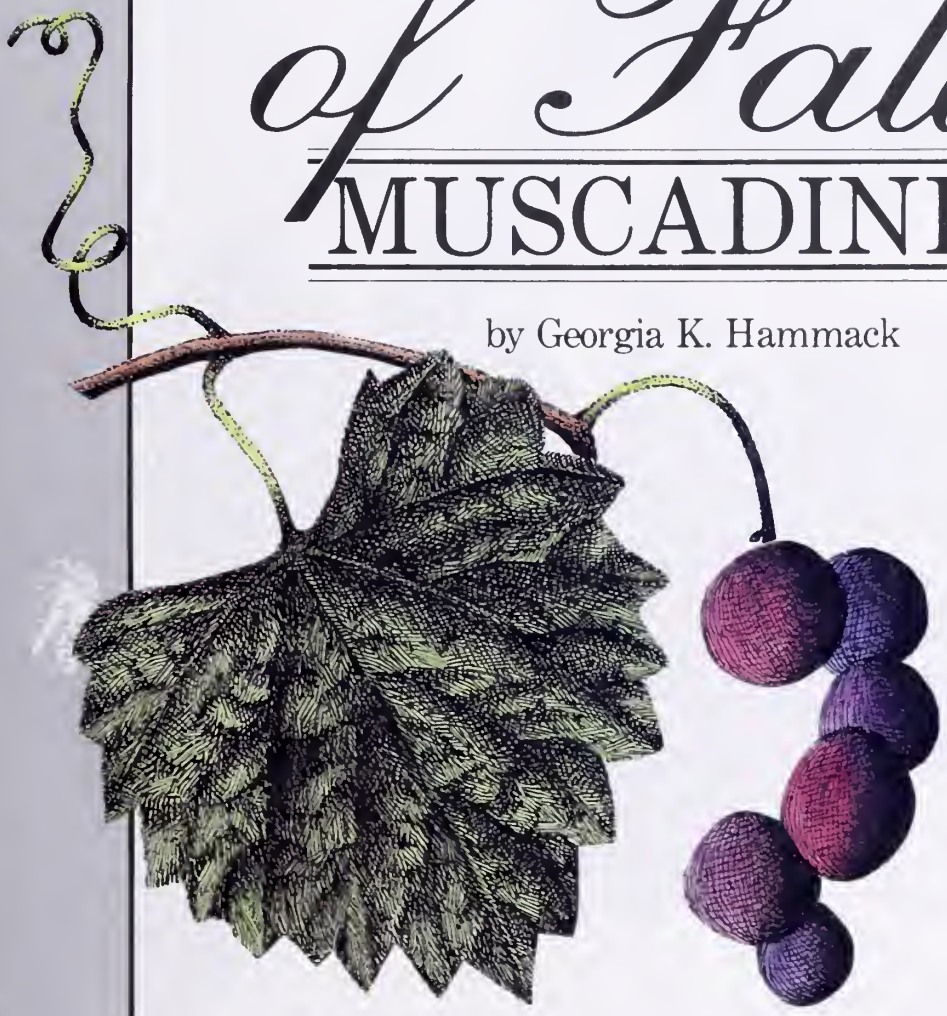
Robin Schroeder

Sarah Bartenstein

Grapes of Fall

MUSCADINES

by Georgia K. Hammack



illustrations by Dick Bernard

Autumn's bright blue weather is not without its perils. In September, those tiny black cherries are dropping from the wild cherry trees. There's a tree by our clothes line, and I have to arrange clothes carefully so they won't end up with purple stains.

But falling also in autumn, and not a peril, are hickory and walnuts, and muscadine grapes, and acorns. The last aren't a food supply, but they supply a familiar sound of fall as they let loose and drop.

The muscadines are among the greatest bounty of the fall. I never feel like the fox in Aesop's fable; I never think that the grapes high up and out of reach are sour. I'm con-

tent to leave them there, delicious and sweet, for birds or tree-climbing creatures. There are always enough grapes close at hand to pick and carry home in paper bags, heavy with scent, to make into jelly. It didn't take my husband and me long to pick 11 pounds on one recent afternoon excursion.

Making jelly from muscadines is a satisfying process. The juice jells quickly without adding commercial pectin, and the jelly looks dark and enticing in the glass—the way the grapes look in the woods.

On the vine, the darker grapes are dusky and beginning to hint of softness. For good jelly, you also need some of the not-quite-

ripe ones—they're lighter, brighter purple and are still hard. It doesn't hurt to throw in some green ones too.

Going to look for muscadines doesn't entail the perils of going blackberry picking. There aren't all those briars and noxious summer insects (though even these don't deter the most devoted of blackberry pickers). The muscadine vines pull down easily, sliding down the branches of trees, or pulling a slight tree over. There is a wild rustling of leaves, and a wide scattering of grapes. You can pick these up from the ground, often from a heavy carpet of pine needles. Pine needles are frequently hanging thickly caught amid the vines also, straddling twigs or dangling upside down.

It's easy to pick the grapes that are hanging. Some dangle singly, but often they are in clusters of five or six, and you can grab them all at one time. Sometimes you don't have to pull a vine down; you can just reach and pick. You can note the vine's wiry tendrils—in curly loops like clothespin wire—and the light green, heart-shaped, scalloped-edged leaves.

There are always some grapes you can't reach—dark, dangling globes against an autumn sky, amid the slightly changing trees in the woods.

Years ago, a friend gave me a recipe for making muscadine juice. The grapes are left whole in the jar while processed (by the old fashioned, hot bath method) and the resulting juice, served very cold, is delicious, sweet, (though not too sweet) and refreshing. The formula: in a quart jar, place a little over a cup of grapes, a scant cup of sugar and one cup of boiling water; process for ten minutes. In a pressure cooker, the time should be even shorter. Leave the grapes in the jar where they look decorative, but strain before serving. (Frugal cooks, the friend told me, could then use the discarded grapes to make grape pie.)

If you can capture a season in a jar, this is it:

Muscadine Grape Jelly

Most modern cook books give directions for making jelly with purchased pectin, but pectin abounds in the natural fruit, especially when the fruit is not too ripe. Less sugar is required when jelly is made without "bought" pectin.

First, extract the juice. For each four cups of grapes (mostly underripe), add about one half cup water. Boil until the grapes are soft, five or 10 minutes. Then, pour into a bowl through a sieve lined with several layers of cheesecloth. (Special jelly sieves and racks can be bought, and are very useful, but are not essential.) For sparkling jelly, don't press the pulp down with a spoon, thus getting sediment in the juice. Just let it run through, then drip. Discard the pulp.

To make the jelly, use only four cups of juice at a time. Place the juice in a deep pan (to allow for rising during boiling); boil for five minutes, then add sugar—three-fourths to one cup of sugar for each cup of juice. Stir until dissolved, then continue to boil rapidly without stirring until two large drops form along the edge of the spoon, when a spoonful of the liquid is lifted from the pan and then dropped back. This takes about 10 minutes or less. (For a firmer jelly, you can wait until the two drops merge into one, but I've never waited this long, and the jelly has always been firm enough.)

The jelly should be poured into hot, sterilized jars. An easy way to sterilize recycled pickle jars and the like is to fill them two thirds full of water; place in a shallow pan with an inch or so of water; put on stove wick, and simmer for 20 minutes. Sterilize the lids, too.

(Remember that if you are using jars with "sealing" lids, you must *always* use new lids, or you may use paraffin.)

(You should consult a reliable cookbook or handbook on canning and preserving for explicit instructions on sterilizing the jars and lids, and sealing the jelly in the jars, whether you use canning lids or paraffin seals. The danger of bacteria forming in preserves and jellies cannot be overemphasized, and you should be thoroughly familiar with the necessary precautions and procedures before you begin.)

Muscadine jelly can, of course, be made using commercial pectin. Just follow the directions for "grape jelly" included in the package. This is a more expensive jelly because it includes the cost of the commercial pectin and the increased amounts of sugar. Using commercial pection, however, does shorten the cooking time and the necessity for the "two-drop" test is eliminated.

This jelly is delicious, and what could be a nicer Christmas gift? □

Prospecting For FUR

Learning to read fur "sign" is the first step in learning the skills of trapping.

by Don Shumacher

The successful fur trapper prospects for fur as does the miner for gold or precious stones. Prospecting for fur or fur "sign" is a late summer and fall activity for the trapper, similar to the fall scouting trips of the deer hunter.

Frosty mornings, autumn foliage and cool nights tend to cause the average fur taker to develop what is known as "the fever." No doctor or prescription can control it, but periodic sojourns into the habitat of furry creatures can control or contain it to some degree. The symptoms usually appear around the beginning of football season, and the cure usually comes with the arrival of trapping season.

To be successful at the sport of trapping, it is mandatory that the trapper study the target animals in great detail. The deer or turkey hunter has to be able to pinpoint his quarry to a point within shooting range, say 20 to 100 yards and up, but the trapper works in inches. The furbearer that passes within a foot of the trap pan, but fails to step on it, may as well have been a mile from the set. Trapping is, in most cases, an exacting pursuit.

The beginning trapper should spend every available hour studying fur sign well before the trapping season opens. He must look in different places for each species of furbearer.

Foxes, both red and gray, are probably the most sought after furbearers in Virginia today. While some sportsmen fear that trapping is a hazard to the fox population, veteran wildlife professionals and trappers have found that fox populations in Virginia are healthy despite increased pressure in the past few years. Mange, distemper, rabies and parvo virus are greater threats to foxes than is trapping.

The beaver simply cannot hide his presence in any area for very long.

Red foxes generally search for food around the edges of fields, meadows and brush-choked fencelines that harbor quantities of field mice. The tiny mouse (not rabbit or quail as some people believe) is the chief staple of the fox's diet. Look for fox tracks in dusty farm roads or lanes, wood roads that connect fields, and sandy spots around farm ponds and marsh edges.

The gray fox tends to stick closer to the woods, favoring the abandoned farm land, cut-overs and areas replanted in pines. Woods or logging roads are good places to look for tracks and droppings. Be sure to check the silty or sandy ditchline on all timber company access roads. Both red and gray fox eat insects, berries and persimmons, so look for remains or seeds from these in their droppings. This will give the alert trapper a good idea of what his quarry is eating, and where they are feeding.

Look for raccoon sign or tracks along a muddy stream banks sandy bars, and marsh edges. This is where the raccoon searches for food much of its time. Its diet consists of crawfish, minnows, mussels and frogs. Late summer and fall will find many on high ground where they feast on berries, persimmons and all types of corn Droppings are usually found on logs, beaver dams at the bases of den trees, and along trails leading to berry patches and corn fields. You might observe well-worn paths or trails along stream banks that border cornfields.

Muskrats inhabit farm ponds, irrigation ditches, marshes and the larger streams and rivers. In marshland, their conical houses built of sticks and vegetation are dead giveaways. Bank dens are usually spotted in other areas where caved-in tunnels and holes alert landowners to their presence. Muskrats feed on aquatic plants and grasses growing near the water's edge, so look for trails leading to and from these areas, along with accummulations of fresh "cuttings." If there is a cornfield nearby, look for trails. Often, you can find them on sandbars and at the water's edge.

The beaver simply cannot hide his presence in any area for very long. Look for dams and lodges on small streams. On larger streams and rivers, look for freshly peeled cuttings, often piled at the edge of the water, along with well-worn paths to and from wood cutting areas. Beaver that inhabit man-made ponds or lakes usually live in bank dens which may or may not be found; again, cuttings and trails will give the critter away.

The otter probably leaves less sign than any other furbearer, as most of their hunting and traveling is done in water. Piles of fish scales on stream banks, beaver dams and lodges are the most prominent otter signs that one usually observes. Tracks around mud bars and sandy stream areas are sometime visible. It usually requires several years of sign reading to become proficient at seeking out the otter.

Mink are found along almost any stream, ranging in size from a tiny spring branch to the mighty James River. They also hunt around farm ponds, swamps and muskrat marshes in search of fish, minnows, frogs, young ducks and muskrats. They will investigate nearly every hole, hollow log, undercut bank and drift pile along streams, so look for tracks in muddy or sandy areas near these locations. Mink hunt for mice, rabbbits and birds in thickets and brush piles near streams, a pile of scattered bird feathers or fur being a dead giveaway.

Skunk and opossum favor farmland, denning in groundhog dens, under abandoned houses, haystacks, and outbuildings. Their dens are usually found on south-facing slopes of hills. The 'possum also dens in hollow trees. You can usually find well-used trails to and from dens, and tracks along farm lanes and wood roads. They both eat insects, berries, fruit and carrion.

The bobcat inhabits the large swamps of the southeastern part of Virginia and the more remote hill country and mountains of the western half of the state. Tracks, scats and "scratchings" similar to those of a large house cat are sometimes visible on wooded roads and around the edges of abandoned farms. They are great hunters, and their diet consists primarily of rabbits, mice and birds.

One of the most productive times to scout for fur sign is three or four days after a hard rain. Animals move about after stormy periods, and all tracks and sign will be fresh. After floodwaters recede along streams, clean mud or sandbars will record all water furbearer movements.

Most veteran trappers are experts at reading fur sign, and a journey into the woods and waters with these woodsmen can be an enlightening experience for the average Virginian. Their advice and input to Virginia Game Commission personnel is often helpful in determining bag limits and length of seasons. Commission biolgists have several furbearer study programs in progress, and through combined efforts of many people, Virginia continues to harbor a healthy furbearer population. □

Members of the Virginia Trappers Association are always willing to assist Virginians in matters regarding furbearing animals. Lectures, field trips and nuisance animal control assistance are available. For more information, contact Don Shumaker, V.T.A., 10608 Hamilton Rd., Glen Allen, Virginia 23060, 804/262-8091.

The first major cold snap had finally made November seem more like November. The mallards, pintails, Canada geese and whistling swans knew it, too. Apparently many of them had ridden the strong northwesterly winds to the Hog Island Wildlife Management Area in Surry County. The winds were still strong, though moderating, and the temperature was cooling dramatically. Mallards and pintails dropped into shallow ponds almost constantly in flocks of a dozen or so or just in pairs. About 200 mallards slept or preened at the edge of some flooded corn having apparently already satisfied their hunger—the drakes' green heads sparkling in the sun. Graceful, brown-headed pintail drakes fed actively while a flock of long-necked whistling swans chuckled and cooed. The young swans were conspicuous in the first-year dress which consisted of soot-colored heads and necks, and pink bills.

A trio of yellowlegs—"tattlers" the old market hunters called them—walked deftly through the shallows.

The Scenic Route

A photo-essay on Hog Island Wildlife Management Area.

by Carl "Spike" Knuth

Suddenly, they took flight and scattered, as if in a panic. Their actions were justified seconds later as a peregrine falcon swept over the pond on powerful wings. After a few passes back and forth, it went on its way.

Flocks of Canada geese parachuted down from on high to the green wheatfields along the James that area supervisor Clyde Abernathy had prepared for them. Standing corn and milo, also planted by Abernathy for the geese and waterfowl later in season,

Among the sights at Hog Island on a November day were a white pelican (preceding page, top), Canada geese (preceding page, bottom), and whistling swans (this page).

hosted clouds of red-winged blackbirds. The cold front had gotten the birds off "dead center" as if they were being reminded of the season to come, and they were responding with much activity.

All of these species and many more are common to Hog Island at varying times of the year. This day, however, a bonus awaited. Upon stopping at Fish House Bay in the shadow of the Surry Nuclear Plant to photograph a flock of geese, I noticed a chunky white bird. It

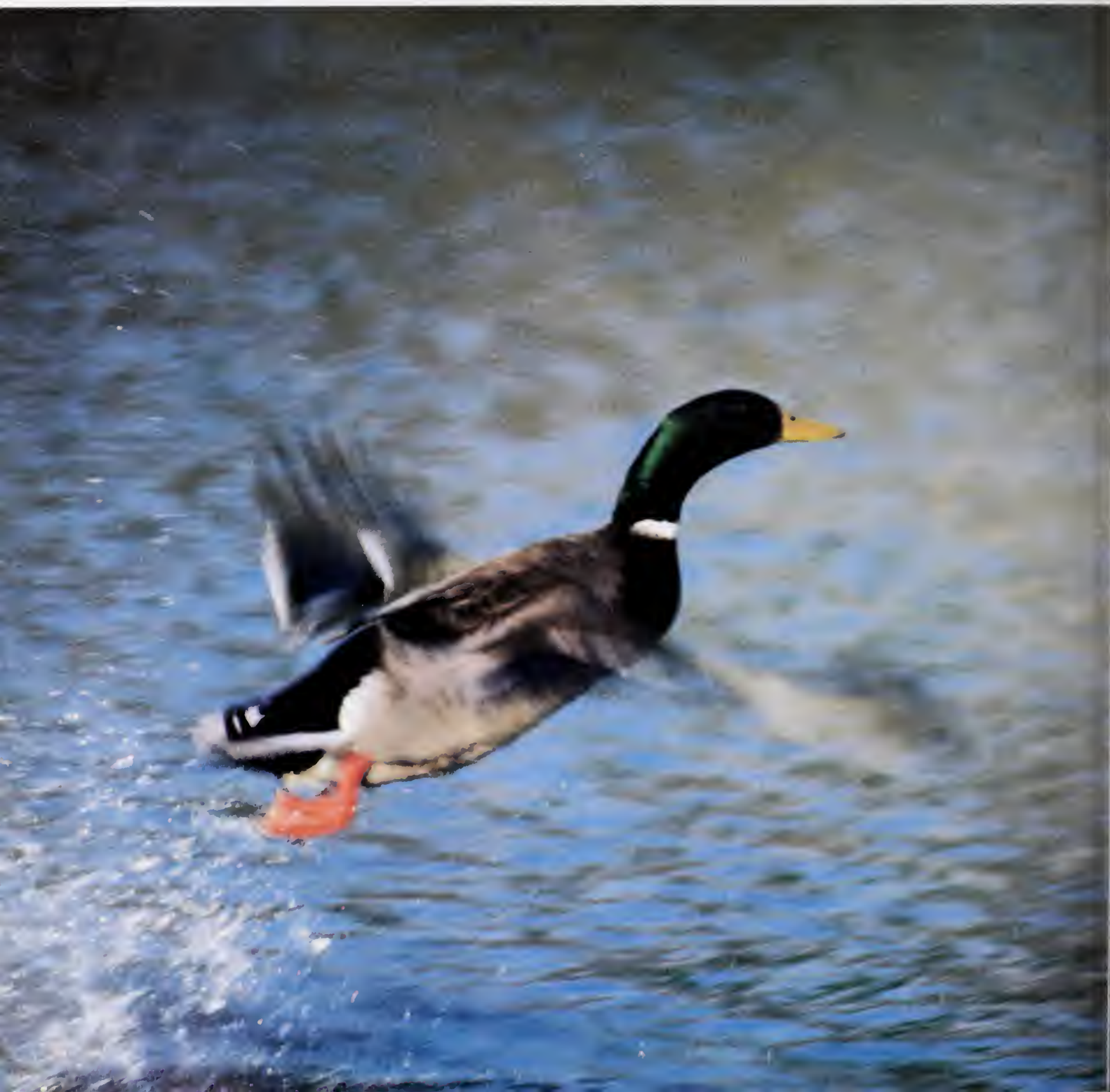
appeared to have black wing tips and a long yellow-orange bill. Hampered by my astigmatism, I guessed snow goose or crouching egret. When I stopped my vehicle, everything took flight, so I quickly put the 500mm mirror lens on the white bird.

Its flapping and gliding flight style was unmistakable, as were the long, pouched orange bill and long black-tipped wings on a chunky body. A white pelican had either wandered or had been blown east. Although they winter in northern Florida and west along the Gulf, they breed in the prairies of Canada and the northern United States. They usually migrate in vees or long lines via the Central, Mountain, Pacific and Mississippi flyways.

This fellow, traveling in the company of Canada geese, had apparently decided to take the scenic route home through Virginia's Hog Island Wildlife Management Area. □

Spike Knuth is familiar to Virginia Wildlife *readers through his cover paintings and the "Bird of the Month" column.*

(Below) One of the hundreds of mallards at Hog Island.



"I Thought They Were Going to Send a Man"

by Diane Thompson
Game Warden
Law Enforcement Division

Little did I know, when I left my teaching job and the city of Virginia Beach in 1970, that 10 years later, I'd be back. . . as a Virginia Game Warden.

In May 1980, I accepted a position with the Game Commission as a game warden, and began training in Richmond. Although the Game Commission employed women as game wardens many years ago, Susan Alger and I were the first modern-day female game wardens in Virginia.

During the first brief meeting of the basic school, we learned that we would be treated equally, right down to the last hair on our heads, literally: in order to comply with regulations, we had to cut our hair.

Warden Alger and I completed our training successfully and experienced no problems in getting along with the male members of the class. Despite the cooperation from the men, however, I am sure that there were some who were skeptical that we could do the job, and some may still be.

Following this initial training, we went to the basic police school operated by the Central Virginia Criminal Justice Training Center where we had other female classmates. Still, we were unusual because we were game wardens. The other participants asked us plenty of questions, and many were surprised to learn that the job fit right in with the way I spend my spare time.

We experienced no discrimination at the Police School, and all requirements were the same for men and women. At our graduation banquet, no one was more surprised than I that the Outstanding Achievement award went to me.

Since completing my training and working with the other wardens in the Virginia Beach area, I haven't had problems with wives or girlfriends. People kid us about working spotlighting together: we sit in dark fields for hours and wait. The potential ramifications are obvious. But all of the officers I work with are professional in attitude and behavior, and none

Tom Hickman

would consider anything that would compromise their job performance in such a dangerous—even life-threatening—situation. When people adopt this kind of attitude about their careers, no one needs to worry about such things.

There are minor things that a male officer might worry about when he realizes he will be working with a female officer. "Should I open the door for her?" "Is she going to worry about touching fish or getting dirty or breaking her nails?" "Is she afraid to go into the marsh?" "Do I have to watch my language?" Women who realize that men are concerned about these things can help things go smoothly. A good formula for success is to acknowledge that you are a woman and not try to act like a man, but to carry your own weight. These things may sound trivial, but they do make a big difference.

Another important thing for a woman in a job like mine to do is keep her sense of humor. Several amusing things have happened to me in my two-year old career. While working in plain clothes, hunters have said that we were sneaky enough to carry shotguns (to look like hunters), but for a warden to have his girlfriend carry his summons book was going too far! Comments like these get back to me: "Ogden and his boy just checked me," or "Akers had his boy with him on the river today." Sometimes men will let loose with a string of swear words only to realize too late that I am a woman, and are suddenly quite apologetic. They also become polite, and want to unload their shotguns and check their own plugs while I watch. And then there are other kinds of comments: "You can arrest me anytime," or "I'm going to kill a doe deer; if I tell you where, will you arrest me?"

No one wants to be issued a summons, but no one has been abusive about having a woman issue it. I did have a bystander comment once that I should be at home raising children. And when I arrived at a farm to check crop damage, the farmer said "Oh, I thought they were going to send a man. It's awful muddy here."

Physical confrontations are dangerous for any officer, male or female. When I began this job, any concern from other officers over my performance in a potentially dangerous situation was because I was new, not because I am a woman. I believe that I am as strong as any man my size. But, how many men are 5'3" and weigh 110 pounds? No officer should provoke trouble, and I always try to be pleasant. A combination of common sense and knowing when to use issued weapons for survival is the key.

What effect has the job had on my personal life? Like other officers, I have to work long—and unusual—hours, and can be called out at a moment's notice. My husband, Jerry, is supportive because he knows how satisfying the job is for me. We don't have children (only our German shepherd), and that's probably best. Settling in and finding friends was no problem, in part because of the help of other game wardens. But the hairstyle has presented problems for me. Being referred to as "Sir" or "Boy" on a daily basis takes its toll. I have seen women walk into a public restroom, see me, and walk back out to check the sign on the door. But the worst thing is to walk down the street holding hands with my husband and have people look and whisper, apparently convinced that we are homosexuals. Still, any woman who wants the job and enjoys the work can learn to handle these kinds of problems.

Among my job satisfactions have been the opportunity to instruct new game wardens, and have them take me seriously; to interview applicants for the job; and, most of all, to realize that I have shown some people that a person with a strong interest, positive attitude, and a desire to do a job well can do it, regardless of that person's sex. □

Growing Up Outdoors

by Sarah Bartenstein

The Man in the Sign Shop

Have you ever been to one of the Game Commission's wildlife management areas, or public boat landings? If you have, or if you've been to any of the Game Commission offices, such as the one in Richmond or the one in Staunton, you have seen one of the familiar, distinctive redwood signs that have become the agency's trademark.

All those signs are made by one person. His name is Earl Diehl, and his "office" is the sign shop, a workshop at the Staunton field office of the Game Commission. Earl's official title is "lead carpenter," but he does a little bit of everything: he works on the Game Commission patrol cars that you see game wardens drive. When something around the Staunton office needs "fixin'," Earl is probably the man who fixes it. But his major responsibility is to make the redwood signs that you see on this page. How does he do it?

First, Earl cuts out the shape of the sign—like the shield-shaped ones that have the agency seal on them. For some of the larger signs, Earl has to glue pieces of wood together. He uses redwood for all the signs, because he says it lasts a long, long time. Even after a sign has been in use for years and years, all Earl has to do is "touch it up" with a little sanding and some more paint and stain, and it's like new again.

After he cuts out the sign, he letters it in pencil. He uses a *stencil* to do this. A stencil is a piece of plastic or cardboard (or some other material) with letters or shapes cut out of it. To use a stencil, you just trace the inside shape of the letter or symbol with a pencil, or paint the area within the shape. Then, all your A's look the same, all your B's are just right, and so on. So, Earl uses a stencil to get all his letters just right on the sign. He also uses stencils for the figures on the sign, like the shape of the state, the whitetail deer, the quail and the fish.

After he finishes lettering the sign, he uses an electric drilling tool called a "router." The router routs, as you would expect! What does that mean? Well, basically, this tool "digs out" the wood, so that the letters Earl has stenciled are now carved into the surface.

(Top left) The first stage—Earl pencils in the letters, then routs them; (bottom left) he sands the surface of the sign after sealing and painting the letters; (top right) after he stains the sign, this is the finished product. (Bottom right) this is what happens when people don't respect the signs.

After routing the letters, Earl paints them with a wood sealer. The redwood is so *porous* that it soaks up paint and stain quickly. The sealer will keep the paint where it's supposed to be, inside the letters. Next he goes over the letters with a creamy-yellow colored paint. He doesn't have to be too careful about staying inside the lines, because he's going to sand the sign later, and all the excess paint will come off. He gives the letters three coats, and each coat has to dry for a day or two. Earl usually has a lot of signs in various stages all over the sign shop. When he finishes painting one, he letters or sands another while he waits for the paint to dry.

After the letters have dried, Earl sands the sign with an electric sander. Since the letters are routed, and beneath the surface of the wood, only the excess paint is sanded off. So now Earl has neatly painted letters!

Then, he stains the entire surface of the sign. Again, since the letters are beneath the surface, they don't get stained. And if the stain does get into some of the "nooks and crannies," Earl can just wipe it out with a cloth, because the sealed and painted surface of the letters doesn't allow the stain to sink in the way it will on the bare wood. Earl has developed his own formula for the wood stain that he uses, and he uses a paint roller to apply it. The roller is bigger than a brush, so there's less chance of the stain getting into the routed areas. The signs have a reddish tinge to them when they're freshly stained, but after they've been outside doing their job for awhile, and have been exposed to the weather, they look more brownish.

Earl makes these signs to last a long time, and says that if people would just leave them alone, all they'd need to keep them like new would be an occasional extra application of stain. Sometimes people steal the signs, or shoot holes in them with their shotguns. That's not fair to the rest of us, because the signs are there for *all* of us.

The next time you see a Game Commission sign, take a closer look at Earl Diehl's handiwork, and remember that if you leave it alone, that sign will last for years and years. □

Personalities

by Francis N. Satterlee

Ralph W. Cash

Unabashedly supportive and proud of the Game Commission's fisheries program and his part in its continuing success, Ralph Cash, manager of the Montebello Fish Hatchery, wears his pride like a badge. In visiting with Ralph, it is obvious that he enjoys his occupation and he is quick to expound on the subject by telling how he "really loves the fish hatchery business and the job satisfaction it provides me."

He was born and raised just a few miles down the road from the hatchery in the Rockbridge County community of Vesuvius. In his youth, Vesuvius was primarily a railroad town located on the Norfolk and Western Railroad's main line between Roanoke, Virginia and Hagerstown, Maryland. Ralph's father was employed by the Norfolk and Western Railroad.

His first schooling was in Vesuvius and he later attended and graduated from Fairfield School, located some 11 miles from his home. Work was hard to come by when he was young; however, he gained a great deal of experience from a variety of jobs ranging from simple farm chores to gardening and mowing lawns in his neighborhood.

In September 1944 Ralph enlisted in the U.S. Navy. After receiving basic training in Bainbridge, Maryland, he was assigned to San Diego, California for amphibious training. This was followed by advanced training in Hawaii and crew assignment to the *U.S.S. Ashland*, a landing ship dock. The ship's mission involved considerable travel and Ralph got to see much of the Pacific including Australia, the Philippine Islands and Okinawa. He remembers vividly that the *Ashland* was in the New Hebrides when they learned of the Japanese surrender.

He was discharged in June 1946, returned to Vesuvius and became employed by the DuPont Company in Waynesboro. For the next five and a half years he worked with that organization mainly as an operator in the chemical and rayon area.

In March 1952, he accepted a position on the labor force at the Game Commission's cold water hatchery at Montebello. In February 1976, he succeeded Loven Seaman as manager of the facility upon Seaman's retirement. During the years that Ralph has been associated with the hatchery, he has seen tremendous change. This is especially true of trout stocking methods. An example is the great increase in the numbers of fish being carried in the stocking trucks. Nowadays, the trucks are easily able to successfully transport some 3,000 catchable size fish compared to less than half that number just a few short years ago. At the Montebello facility, Ralph and his crew annually raise about 125,000 brook, brown and rainbow trout. These fish are the basis of the stocking operation which involves more than 20 streams and two lakes in seven Virginia counties.

The brook trout are brought to the Montebello hatchery from the Marion Hatchery as fry during January of one year and are raised to catchable stocking size by June of the following year. Rainbow and brown trout are brought to Montebello from the Commission's hatchery at Coursey Springs. These fish, larger in size than the fry, are held and raised at Montebello from June of one year until stocking during the spring of the following year.

The work at the hatchery involves all manner of large and small jobs, some routine and others pertaining to the highly scientific aspect of fish culture. There is another facet of the work that fascinates Ralph nearly as much as the work with the fish: working with people. He and his crew get their share, for annually, some ten to twelve thousand people visit the hatchery at Montebello.

All in all, it has been, and is, a "great life" for Ralph and Doris Seaman, who became his wife in 1952. They have two sons and live at the Commission's facilities located on the hatchery property. □

The Flying Squirrel

A small beast they have they call Assapanick, but we call them flying Squirrels, because spreading their legs, and so stretching the largenesse of their skins. . . they have been seene to fly 30 to 40 yards.

This is Captain John Smith's description of the flying squirrel, as found in his book, *A Generall Historie of Virginia, New England & the Summer Isles*. The Virginia colonists must have had the benefit of sharp eyesight, or strong moonlight, to have seen these little creatures at all. Nocturnal animals, they are seldom seen in daylight, although they have been scampering in the treetops for almost four centuries since Captain Smith wrote his *historie*.

A small animal,the flying squirrel weighs less than a half a pound. *Glaucomys volans* lives in the trees, especially beeches and maples, from which he descends very rarely. Since he finds his food—mostly nuts and seeds—in the trees, where he also has his home, he has no particular reason to come down to earth. Besides, unlike his non-flying relatives, he is not a speedy runner on the ground; his movements are clumsy, and he cannot quickly escape from his enemies. In the trees, where he feels safe, he is in his element. To jump from one tree to another is something which he can do with the greatest of ease. In fact, he does it not merely to find food, but—to all appearances, at least—often does it just for fun.

Although these large-eyed creatures—some of them gray and some russet-colored, with a white underside—are called flying squirrels, their "flying" is actually gliding. Along each side of the flying squirrel's body is a sheet of furry membrane, folded when he is at rest, stretched from his front to his hind feet. At the wrists the membrane is reinforced with a rod of cartilage, forming a surface ideally suited to gliding. When he glides, the membrane, which, joined to his body, gives him an almost square shape, acts as a parachute, with his tail as a rudder. He can even change course while in flight, apparently by adjusting the slack in the membrane, while maneuvering his tail

The flying squirrel's relative the tree squirrel, which is not a nocturnal animal and cannot "fly," has the ability to jump from branch to branch, but can jump only short distances. He too uses his tail as a rudder when he leaps, and it also serves as a parachute when he descends. Without his bushy tail, he would have the wind knocked out of him every time he leaped. And the flying squirrel, of course, needs a more efficient parachute than his tail for his phenomenal leaps.

Captain Smith's assertion that the flying squirrels could fly thirty or forty yards was not exaggerated. In fact, they have been known to jump farther than 150 feet. When the flying squirrel is preparing to leap, he stands with his feet together and leans this way and that, gauging the distance. Then he jumps, his tail extended straight behind him. As he prepares to make a landing, he puts out his hind feet as if he is putting on the brakes, and his tail shoots upward. When he is startled, he will leap without calculating the distance, in which case he will usually miss his target. It is a disaster if he should happen to fall into the water, for the flying squirrel is one of the few mammals that cannot swim.

The flying squirrel's skill in gliding appears to be a gratuitous gift of nature, since it does not seem to be necessary for his survival. He is an excellent climber, and can not only run up and down trees with dizzying speed, but can scale walls with no difficulty.

These little animals are sociable creatures and live in communities, or aggregations. The communities consist of adults of both sexes, as many as twenty of them having been observed sharing the same den. When a stranger wishes to join the community, he is "interviewed" by a member of the group, and if he gives a satisfactory response, will be admitted.

Gregarious though they are, however—and the flying squirrels are at their most gregarious in cold weather—the sociability of the female vanishes when her young are born. Before and after the birth, she will drive any adult squirrel away from the tree in which she has her nest. The nest, which is apt to be a hole which a woodpecker has abandoned, is prepared by the mother with a soft lining of fur, feathers, moss, and bark. It contains from two to four tiny babies. When the young are old enough to be independent, the mother resumes her former sociability. The female flying squirrel is a conscientious mother who takes her family responsibilities seriously, but when she is free from such duties, she is as playful as the rest of her species.

One of the most interesting and attractive aspects of the life of the flying squirrel is the element of play which seems to be an integral part of his existence. While the ability to glide from one tree to another a hundred feet away is probably an advantage in the never-ending search for food, it also seems to be pure pleasure for the flying squirrel.

John James Audubon, who is known primarily as an ornithologist but who studied mammals as well as birds, once observed about 200 flying squirrels in a group, leaping in the treetops in Pennsylvania. They appeared to be "flying" just for their own amusement.

It is probably no accident that an animal as sociable as the flying squirrel should also be a fun-loving little creature. Like the sociable people in the human family, he has an outgoing personality. The connection between sociability and playfulness can also be seen in those social and joyously playful animals the otters, who have been observed playing "follow the leader" with as much enthusiasm as a troop of children. The unsociable animals, on the other hand, tend to be concerned mainly with the practical, such as the hunt for food. The beaver, although he lives in a colony, is not social, works by himself, and has little contact with his fellows. His life is nothing but working, eating and sleeping.

The "language" of the flying squirrels has been deciphered to some extent. When all is well, their normal chuckling chatter is low-pitched. When they are displeased, the sounds become sharp. When they sense danger, they utter shrill cries. And when they are really angry, they stamp their feet.

Every kind of animal is fascinating in his own way, but for personality, *joie de vivre*, and acrobatic talent, there are not many to surpass the little creatures of the night, the flying squirrels. □

by Mary Villarejo

Dale Bannister

ON FALL TURKEY HUNTING

One hunter's pearls of wisdom on the pursuit of turkeys in the autumn woods.

by Jeffrey M. Curtis

The three things I love most in my life are spring turkey hunting, fall turkey hunting and my wife . . . not necessarily in that order.

You've read and heard a lot about spring turkey hunting. For some reason, that's what everyone wants to write about. (Preoccupation with sex, perhaps?) But let's consider fall turkey hunting.

Turkey hunting in the autumn months is a series of unexpected encounters during quiet jaunts in the woods: a rustle here, a flush there, and suddenly—turkey. Actually, it's usually several turkeys. Several turkeys which, while observed from an unobtrusive blind, will unknowingly, involuntarily, and geometrically increase each time the tale of the encounter is told.

This phenomenon—that of a flock of autumn turkeys to gain in membership—is difficult to explain rationally, but it remains a truism just the same, borne out by experience time after time. Too many flocks or groups have I recorded in my notebook which have, much to my surprise, turned out to have been incorrectly accounted for. What, in my notes, was recorded as a flock of five birds, my infallible memory says was, postively and beyond a shadow of a doubt, *at least* a dozen birds. Oh, and *big* birds.

I bring this truism to your attention only to set the stage, to give as accurate a feeling for fall hunting as possible.

Fall turkey woods are lively and real. Spring turkey woods are light and dainty.

Spring turkey hunting means ephemeral little whisps of blossoming pinks and whites, flowers, chipmunks scurrying in damp leaves.

Illustrations by Geneva Welch

Henry C. Welch

Fall woods are strictly business. Leaves command full attention, not only by their brilliance in the trees, but for the unforgiving way they "snap" on the forest floor: watch where you step! Fall may be a season of death according to all those classics you had to read in school, but things are actually quite lively. The mast is being accounted for by the bushytail, songbird migrations are well underway and most important for us, the wild turkeys are very busy with full social schedules.

Community relations is the main concern with the birds this time of year. There's more wing flapping and putting going on than at any other time of year. Birds are mixing and socializing and scratching—it's perpetual motion time. In the spring, on the other hand, the key word is *sex*. What was just a few weeks earlier a majestic, cautious, domineering forest trooper now has regressed into a noisy, anxious (but still cautious) ladies' man. The "King of Game Birds" is reduced to a quivering adolescent Romeo.

But the fall is time for friendship flocks and promising turkey promises of comaraderie.

In just about every book presently available on hunting the wild turkey, you'll read that a yearling gobbler is one-third larger than a hen, and that the female's plumage is the lighter of the two. You'll also read of older gobblers remaining a bit aloof and hanging about exclusively with other older gobblers, while the youngsters play with other youngsters. Turkeys conducting their own form of age segregation.

Horsefeathers!

If ever you come upon a group of fall birds and have not only the opportunity, but the ability, to pick out the boys from the girls, the old-timers from the young'uns, please let me know. I'd like to talk about some things I have for trade material.

The spring permits sexual differentiation. In fact, the spring encourages and puts definition into sexual differentiation. It had better!

But in the fall, they're just turkeys. Noisy, gregarious, and big. The hunter who can scan a gathering of fall birds and say, "Oh yes, there's a yearling male and three hens," has my awestruck respect. I can't do it. The encounters I've had with the autumn variety have always been a matter of, "Good golly, thar's a flock of turkeys!" You just don't have time for sexing and aging with the fall flocks. It's a matter of searching the woods for them, finding them, and then scattering them. The searching is usually the lengthy part. The finding is often simply recognizing the game sought before its immediate and raucous scattering. On occasion, the groups can be located while still on the roost. This either happens from hearing the heavy flapping as they fly up to roost the night before, or from hearing the early morning wake-up calls exchanged between the group members before coming down.

As stated before, fall hunting is lively. The birds will chat and perk and cluck on the roost in the morning, making sure everybody is still alive and accounted for. Then they fly down and social hour begins.

It's here that we'd better discuss the makings of a good fall hunt. In the spring, calling is the main thing. (You may think it a dubious distinction to be able to seduce Romeo Gobbler and convince him of the promise of all manner of romantic delights, but you've gotta do it.) In the fall, however, after the birds are located, everything depends upon one thing: scattering.

Generally, the fall birds can be depended upon to do two things. When undisturbed, they will congregate. When disturbed, they will re-congregate. This, of course is a generalization, but that's the stuff of magazine articles, and besides, we need something on which to base a battle plan.

Let's address this scattering business. There are two means of breaking up a gang of turkeys: with the aid of a dog, and without. Here we will only discuss the use of "without." (Using a dog on turkeys is a whole other story with me.)

Turkeys can be approached from several diverse means in the fall: unexpectedly as you crest a hill, hearing the morning reverie from a roost site, or, as twice happened to me on a squirrel hunt, having the birds practically walk into your lap. This is the business of finding them.

The business of scattering them is, and always should be, as loud and forceful as your underexercised body will allow, and then some. You have to strain when you bust up the gang. They'll thank you for it later.

You can't shoo turkeys away in the fall. They're too dependent upon each other's company and will regroup elsewhere without you.

To do it good and proper, grab your firearm in both hands, let the birds come as close as you dare and run towards the thickest of them. And scream. And shoot your gun in the air. All at the same time.

Then, for good measure, continue doing this in any general direction a bird may have gone. Chase them away from each other. If you've done it right, the birds should have exploded in all directions and you'll probably feel like you're going to die. But that's good, that's the way you're supposed to feel. Now the hunt begins.

You'll have practiced considerably on your calling before the hunt, of course. And you know all the call names. And heard about the proper rythm and the amount of calling.

So while you're concealed where you scattered the birds, you're going to put all that aside and do one thing. Call back what you hear. A lost turkey, especially a younger bird, will sound like desolation and despair itself. It'll whimper and complain and yell for companionship. And you'll do the same on your slate, box, wingbone or diaphram. Imitate the call you're hearing. Talk back to him or them. Hold still and get ready.

As I said earlier, fall turkey hunting is one of the top three loves of my life. Now, about spring hunting . . . □

Jeffrey M. Curtis works for the education division of the Game Commission—when he isn't turkey hunting. He holds a bachelor of science degree in natural resources from Ohio State University.

Outdoor Notebook

edited by Mel White

Are You A Real Sportsman?

by James Kerrick
Game Commission Safety Officer

This morning I received a Uniform Hunter Casualty Report in which a young man died because the shooter placed his loaded shotgun in a vehicle. The shooter stated that he did not think about unloading his shotgun.

I have asked myself many times over the last 21 years, "Why carry a loaded firearm in a vehicle?" The law states that it is unlawful to shoot from a vehicle; therefore, there is no logical reason to carry a loaded firearm in a vehicle.

During the 1981-1982 hunting season, two hunters died and three were injured removing or placing a loaded firearm in a vehicle.

On November 15, 1982 thousands of hunters will take to the woods hoping their "bag" will be a 12-point buck. All should take special precautions to ensure that what they think they see is a game animal, and not another hunter.

For big game (except turkey), hunters should wear blaze orange or some brightly colored outer garment so they will not be mistaken for game.

Each gun should be in perfect working condition; check ammunition to be sure it is correct for the gun being used.

With the exception of National Forests, State Forests and Wildlife Management Areas, most private land is posted and you are required by law to obtain oral permission if the land is not posted, and written permission if it is posted. Hunters should contact the landowner before the opening of the season to obtain permission. Do not wait until the opening day.

When in the field hunting, hunters should respect the landowner's property: they should close gates behind them, should pick up trash (such as lunch bags and soft drink cans), and should never run vehicles across planted fields.

The hunter should take precautions in crossing fences and ditches and each hunter should know where his hunting companions are at all times.

National Shooting Sports Foundation

Educated hunters are safe hunters: the Game Commission offers hunter safety courses for all ages.

It goes without saying that you must have a license to hunt. Remember, hunting is a privilege, not a right. Seasons and bag limits must be adhered to.

The Virginia Hunter Education Course has helped reduce the number of hunting tragedies that occur each year, and every hunter, young and old, should take the Hunter Education Course. There are advanced courses available for bow hunters, black powder hunters, and trappers. Take advantage of these courses; it could prevent a tragedy.

For further information, contact the Safety Officer, Commisson of Game and Inland Fisheries, 4010 West Broad Street, Richmond, Virginia, 23230 or call (804) 257-1000. □

Serious Boating Accidents On The Increase

While the number of boating accidents reported in Virginia this year is no higher than last year, the number of people being killed in these accidents is growing at an alarming rate.

Last year's 45 reported boating accidents killed 15 persons, but 19 boaters have already died in 42 mishaps this year. Game Commission Safety Officer James Kerrrick, who compiled the figures, considers the jump from 4.5 accidents per fatality to the current 2.9 per accident a dramatic and totally unnecessary rise in the loss of life. "There is no need," said Captain Kerrick, "for recreational boating to be a life-threatening pastime." While no discernible pattern emerges from this year's statistical information, Kerrick believes that careless operation plays a major role in fatal accidents. "Again and again," says Kerrick, "we remind people of the very simple things that will save their lives—wearing PFD's (personal floatation devices), maintaining a reasonable speed and keeping alert for other boaters and hazards on the waterways. But every year, an all-too-large number of boaters get careless and become one of our grim statistics." □

Books, Broadsides & Bargains

Except when he is eating your garden, the Eastern chipmunk is the most cuddly little critter you're going to run into in Virginia. If you wonder what these little beasties do all day, here's the book for you. *Eastern Chipmunks—Secrets of Their Solitary Lives* is a record of carefully observed

habits and daily activities of one of Virginia's smallest animals.

The author and photographer, Lawrence Wishner, has done a good job of combining an accurate, comprehensive life history of the chipmunk while still entertaining the reader with an active narrative. Wishner's photos go a long way toward making this book one that you will want in your home library.

Eastern Chipmunks is published by the Smithsonian Institution Press and sells for $17.50. (900 Jefferson Dr. SW, Washington, D.C. 20560)

Magazines come and go, and most we see are little more than ordinary. It's refreshing to see a really good one come along. One came in this summer: it's called *The Living Bird Quarterly* and is produced by the Laboratory of Ornithology at Cornell University. It's colorful, readable, informative and, I think, a must for anyone who has a thirst for knowledge about birds. Editor Jill Crane is off to a flying start, we wish her all good luck. (Laboratory of Ornithology, Sapsucker Woods, Ithaca, NY 14850. Telephone 607/256-5056)

Some wildlife is threatened—you can find out what and why in a new book from Tidewater Publishing in Centerville, Maryland. The 147-page paperback, *Endangered and Threatened Wildlife of the Chesapeake Bay Region*, contains current information on all threatened and endangered wildlife in the Virginia-Maryland-Delaware area. Each species, from whales to isopods, is pictured in color and accompanied by notes on its description, distribution, habitat and behavior.

The book includes maps and a complete listing of all threatened and endangered animals and plants. There is also a list of rare vertebrates found in the area. This book is available from the publisher or by mail from the Game Commission (Box 11104, Richmond, Virginia 23230) for a reasonable $5.50.

Ever been sitting out there in the middle of the lake, rod in hand and a year's supply of lures at your feet, tried every one, and "got no fish." Now one company, Basstronics of Oklahoma City, says they have the answer—a lure selector computer. Carry this gadget along in your boat and answer the required eight questions and it tells you what lure to use for that particular situation. The day of the electronic professional guide has arrived. □

Coming Next Month . . .

Here are just a few of the things you can look forward to in the December issue of *Virginia Wildlife*:

"Taking Wing," the moving story of a boy's first duck hunt by Danville writer Steve Ausband.

"Dreamin' of a White Christmas." What are the chances of having snow on Christmas Eve or Christmas Day in your town? Pat Cooley plots a forecast according to past Virginia Christmases.

"Follow An Icy Hollow." Bob Belton and Catharine Tucker show how the outdoorsman or woman can continue to appreciate the gifts of nature no matter what the temperature outside.

And, of course, there's more—more features, colorful photos and paintings, as well as our regular departments—to help you ring in the holiday season. Look for it all in the December issue of *Virginia Wildlife*. □

If you've been dreaming of a white Christmas, be sure to read Pat Cooley's article in the December 1982 issue of Virginia Wildlife *(top right); and look for Bob Belton and Catharine Tucker's story about enjoying a winter outing (bottom right).*

Cindy Foster

Catharine Tucker

Tale of a Gobbler

Tail of a gobbler, harvested last fall by John Reynolds of Mineral. The big turkey was taken during an early morning deer hunt with his father and grandfather on their farm in Louisa County.

Moving?

Don't forget to let us know!

Among all those details that you have to attend to when you're moving from one home to another, don't neglect to let *Virginia Wildlife* know your new address.

If you're moving soon (or have recently moved), please attach your most recent address label from *Virginia Wildlife* on the form below, and then write the new information in the blanks provided.

Home is where *Virginia Wildlife* is—don't miss a single issue, no matter where you are!

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You can be sure to catch more on the pages of Virginia Wildlife!

Catch the big savings on the per-copy price of *Virginia Wildlife* when you buy it "by the dozen." You'll get a 65% savings on the best how-to, where-to, and when-to outdoor magazine Virginia has to offer! Mail the form below to *Virginia Wildlife*, P.O. Box 11104, Richmond, Virginia 23230, or give it to your game warden.

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The Groundwater Connection

Groundwater affects everything: land, wildlife, and us. Its contamination is a serious problem.

by A. J. Zagar

Water is the driving force in many biological processes. The types of vegetation in an area are partly determined by the water present, and the animals that are present are directly related to the plants. The importance of water to wildlife is directly obvious in a few cases, such as for waterfowl and fish. Other relations between water and wildlife are less obvious, and therefore the impact of development on water resources is not always fully examined, and used to shape and improve the development.

Development of water resources is usually thought of as dams and reservoirs, draining wetlands, and channelizing streams. These developments deal with surface water, which is the water that we see as lakes, ponds, streams, and runoff from storms. Although surface water is an important component of the hydrologic system, it is not the only one. Groundwater as well must be noted, monitored, and managed.

Groundwater is the water that exists in open spaces of soil and subsurface rock. This water may occur just inches below the land surface, or may be at a depth of several hundred feet, depending on the geology of the area, time of the year, amount of rainfall, and other factors. Groundwater, like surface water, is a dynamic resource. It moves, does work, and affects and is affected by the ecology of an area.

Groundwater movement is slow. Years may pass before any discernible change takes place. The rate of movement is largely dependent on the geology of the area but can be modified by such things as recharge or withdrawal.

Groundwater serves people by its capacity to do work. It can be pumped from wells for irrigation, industrial use or drinking water. Many areas are almost totally dependent on groundwater for one or more of these uses.

Groundwater interacts with other resources with results seen when a person walks through a forest, watches a flowing stream, or looks onto a pond. These interactions are important to wildlife, and modifications of these interactions can have drastic effects. For example, a landfill may contaminate a nearby stream through the groundwater, thus destroying the biological productivity of the stream below the point of contamination, but excessive removal of groundwater near the same stream may destroy the entire stream. Furthermore, if such a change occurred on the entire watershed, the vegetative cover of the area could be altered.

Contamination of groundwater is a serious problem. Contaminants may come from many places. Mining and industrial wastes are frequently responsible. Agricultural land runoff containing animal waste, pesticides, and herbicides is a problem. Septic tanks are potential sources when not located and designed properly. Underground storage tanks for gasoline and oil can leak their holdings into the ground, and storage of radioactive waste has already started to create problems.

Situations created by overdrawing groundwater can be a significant problem. Besides the consequences of not having the resource for future use, there are other problems like land settling. These have immediate ecological consequences, not to mention the consequences to structures (like houses) nearby.

The impact of changes in groundwater affects not only land and wildlife, they affect the health and well-being of the people in an area. Preventive measures to guard against deleterious situations should be started by everyone involved in any land use or planning. Practices such as conservatively using well water, improving mining practices, judiciously disposing of waste, and taking greater care of the land surface are things that individuals and communities can do to avoid this destruction. The results will be good for wildlife. . .and people. □

A. J. Zagar is a graduate fellow in the department of fisheries and wildlife science at Virginia Tech.

Phyllis Saroff

Bird of the Month

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Pictured here is the artist's first sketch of what will become a full-color waterfowl decoy painting commissioned especially for you by *Virginia Wildlife.*

Yes, I want to give *Virginia Wildlife* to ten of my friends.
Please send me Ed Hatch's limited edition print.

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by Carl "Spike" Knuth

The Redhead

The fall migrations of birds, especially waterfowl, are among the most interesting fetes of our wild creatures. From childhood on we are told that birds fly "north" in spring, "south" in winter. Generally speaking, this is true, but there are some unusual twists to this accepted belief. Many ducks fly east from the Canadian prairies to the Chesapeake Bay, others southwesterly to the Pacific. Waterfowl and other birds utilize flight corridors or flyways that may take them in many directions other than straight north or south. One unusual example is a small population of redheads that migrated from the Bear River Marshes of Utah in a northeasterly direction to North Dakota and Minnesota. Here they joined Canadian nesting redheads to fly south to the Gulf or east to the Atlantic.

The redhead's scientific name is "*Nyroca americana*," "*Nyroca*" being a Latinized form of the Russian word "*Nyrock*," diving duck. While the redhead is an open-water, diving duck it tends to be more of an inland, fresh water species of all the divers. Like all diving ducks, it rafts on open water or on big marshes. Chesapeake Bay, Back Bay and Currituck Sound host wintering redheads, but not in the numbers they once did. Some flocks never come farther south than the Great Lakes Region or southern New England, but a good share of the population winters from Florida to Texas on the Gulf.

The redhead is a large, long-bodied duck with a puffy head. The male is a red-headed, black-chested and gray-backed duck, while the female is basically brownish with a paler brown head. Both sexes show a white belly in flight and have pearl gray speculums. The bills of both are bluish-gray with an obvious whitish ring bordering the black tip. The female is similar to the scaup and ringbill hens but is larger and lighter in color. The scaup has a definite white face patch, the ringbill a definite white eye ring. The hen redhead merely shows a whitish chin and is palish around the eye.

Most redheads are already on their way north by mid-March and they begin arriving to their breeding grounds just as the ice and snow are retreating from lakes and sloughs, usually about mid-April. They breed in the prairie sloughs and parklands of Saskatchewan, Alberta and Manitoba. Lesser numbers of redheads nest in the north central states and a number of western marshes in Oregon, Washington, Idaho, Nevada, California and Utah.

There are few species that have sufferd more harm at the hand of man's land use practices such as reclamation projects, settlements, pollution, siltation and agricultural practices. Recent droughts have added to the devastation of the redhead's breeding range. The redhead's nest site needs appear to be more specific, and their overall breeding range narrower, than other species. The redhead also seems prone to higher natural mortality than other ducks, although this, too, can probably be tied to destroyed habitat.

After courtship and pairing off, the hen begins her reproductive chores. She shows a definite preference for nesting over water in dense clumps of reeds, rushes or cattails. The nest itself is formed from the available vegetation and is heavily lined with down as the eggs are laid. A normal clutch of buffy or buffy-olive eggs is 10 to 15 although some nests may contain over 30 eggs. Some redhead hens are prone to "dumping" their eggs in the nests of others, even other species, which probably accounts for the occasional high numbers. Its not unusual for canvasbacks or ruddy ducks to rear a redhead.

The redhead hen performs the incubation duties alone while the male goes through his annual moult. After 22 to 28 days, the eggs hatch. The young grow rapidly, being half grown and fully feathered at seven to eight weeks of age.

About 90 percent of the redhead's diet is vegetable matter, a percentage higher than that of most diving ducks. It feeds by diving, mostly for leaves and stems of a variety of aquatic plants, or it will dabble on the surface along with mallards and teal. Pondweeds, muskgrass, wild celery, coontail and smartweed are among their favorite foods. Mollusks, insects and other animal matter are also consumed but mostly during the winter.

Redheads begin leaving their Canadian breeding grounds in mid-October. Most of the Atlantic Coast birds migrate east from the prairies through the Great Lakes to southern New England and the Chesapeake Bay. The heaviest migration is in the central flyway from Saskatchewan to Texas.

Due to its vegetative diet, the redhead is considered among the best on the table. In years past, they were popular with the market hunters. Redheads are easily decoyed and in those days they moved in large flocks. One method used was "tolling," either by a trained tolling dog which ran up and down the shore, or by waving or raising and lowering a handkerchief or rag in a manner similar to pigeoners enticing their birds to coop. Redheads are quite inquisitive and their curiosity would lead them to fly or swim over to investigate.

There was a time when redheads were more abundant on the Chesapeake, but in recent years, there seems to be a tendency for them and other species to move on, since the Bay no longer provides an adequate food source. As with all wildlife species, game and non-game alike, populations are directly proportionate to the availability of adequate habitat. □

Spread Some Cheer

Wondering what to give your friends for Christmas this year that will be special, appreciated, guaranteed to fit, and that's within your budget? Why not *Virginia Wildlife*? It's perfect for your hunting buddy, the bird watcher next door, that nephew who likes to canoe and camp, and your favorite clerk at the tackle shop.

It's sure to be appreciated, because *Virginia Wildlife* keeps giving, twelve months out of the year.

And you'll appreciate that it doesn't strain your wallet—when you give ten or more subscriptions, each one costs only $3.00—a two-dollar savings over the already-low regular subscription price of $5.00.

And since you're no doubt a wildlife lover yourself, we'll send you a special gift free just for giving your friends *Virginia Wildlife:* your own suitable-for-framing, limited edition print of the painting pictured above. This lovely painting by Ed Hatch of Spring Grove, Virginia, was commissioned especially for *Virginia Wildlife* readers, and is printed in full color on high-quality paper with an overall size of 16 inches by 20 inches, and an image area of 12 inches by 16 inches. What a beautiful addition to your home or hunting lodge.

Order today using the special envelope inserted in this issue. The prints are sure to go quickly, and we must have your order by November 15 to ensure that your friends' subscriptions begin with the January 1983 issue, so don't delay!